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MINERAL INDUSTRY SURVEYS

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Tin, Monthly

TIN IN MAY 1996

Domestic consumption of primary tin in May was estimated by the U.S. Geological Survey (USGS) to be about the same as in April 1996 and about the same as in May 1995.

The *Platt's Metals Week* composite price for tin was $4.27 per pound; slightly lower than in April and 7% higher than in May 1995.

The *Platt's Metals Week* Tin Conference was held in Pittsburgh, PA, May 19-21. The orientation was towards consumption and scrap activity. The general consensus at the conference was that the market fundamentals for tin had changed markedly over the past year and supported further tin price rises, and there was guarded optimism that tinplate could recapture some of the beverage can market share lost to aluminum over the past 30 years. The tin trading community seemed mixed in its assessment of continued Government stockpile sales with some being resigned to it, some feeling that Government stockpile tin sales could help supply the market over the coming few years in what could be a supply crunch, and some being quite outspoken that 35 years of Government stockpile disposals have hampered needed investments in world tin mining/smelting projects. Highlights of a few presentations:

a) A spokesman from LTV Steel Corp., a major tinplate producer: The American Iron and Steel Institute is now in the second year of its 5-year, $12 million campaign to promote the use of the tin can as a food container. Early results seem promising.

b) A spokesman for Paranapanema (Brazil), a major tin miner: Recently, Paranapanema, along with six other firms, was bought out and merged into a new unit, owned by several Brazilian pension funds. Parapanema produced tin at the level of about 19,000 tons in both 1994 and 1995. Pitinga is its largest tin mine, followed by Bom Futuro. The firm's Mamore tin smelter will produce about 15,000 tons in 1996, about half its capacity. About half of the firm's tin exports go to the United States. Paranapanema is now considering improved beneficiation at Pitinga and evaluating the feasibility of moving its Mamore smelter from its East Coast location 2,000 miles west, near the tin mines, and also mulling the possibility of other metal production (beyond tin) at Pitinga. Brazil may expand its tin output to 25,000 tons yearly over the next few years; that's up from the current 20,000 -ton annual rate, but still well below the peak of about 50,000 tons annually about 5 years ago. Domestic tin consumption was about 6,000 tons in 1995. There is thought to be great future potential for tin prospects in the Amazonas region, but much of those areas lie on Indian lands where the Government presently restricts mining.

c) A spokesman for Yunnan Tin Co. (China), a major tin miner: Over the past 50 years, Yunnan Tin Co. has accounted for 50% of China's tin output. Forty to 50% of China's tin reserves are concentrated in the zones of Gejiu and Dachang in South China. Eighty percent of China's tin ore comes from underground veins and 20% from placer

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deposits. China's tin smelting capacity is 90,000 tons annually. Yunnan Tin Co. produced 20,000 tons of tin in 1994; the second ranked producer, at 14,000 tons, was Liuzhou Tin Co. Yunnan Tin employs 24,000 people and has assets of $156 million; it is also active in copper, lead, and zinc.

d) A veteran of the Bolivian tin industry: In 1995, Bolivian tin production was valued at $515 million, up from $130 million in 1987, when production fell to its low for modern times owing to the 1985 Tin Crisis and resulting low tin prices. The Government-owned mining agency, COMIBOL, mined only 3,000 tons of tin in 1995, and is now privatizing. The Government-owned smelting agency, ENAF, is also privatizing and produced about 18,000 tons of refined tin in 1995 at its Vinto tin smelter; this also included tin from concentrate from Minsur in Peru. The small mines and cooperatives now do the bulk of tin mining. Vinto now produces mostly low-lead tin and is now widely recognized as the world's largest supplier of that item, which carries a price premium and is in considerable demand by the world's tinplaters.

e) A spokesman for Witco Corp., New York, NY, a major tin chemical manufacturer: Tin chemicals rank, after solder and tinplate, as the third leading form in which tin is used domestically, and within the tin chemical field the organic chemicals predominate vastly in importance over the inorganic chemicals. Major uses for organo-tin-compounds are PVC (polyvinylchloride) heat stabilizers, by far the largest application; catalysts; glass coatings; biocides, (used for crop preservation, anti-fouling marine products, etc.) PVC becomes unstable (changes color) when heated. There are three types of heat stabilizers:
    a) lead, which globally has the largest volume
    b) mixed-metal phosphite (often barium or calcium) which is not effective in stabilizing rigid PVC's at higher temperatures
    c) tin, which controls 100% of the domestic stabilizer market.

The North American PVC market is 11 billion pounds, of which 60% goes to construction. Seventy percent of all PVC is in rigid applications. The rigid PVC market is: 43% pipe and conduit, 13% house siding, 3% window profiles, 3% fittings, 2% bottles, etc. The PVC bottle looked promising 15 years ago, but has now largely given way to PET, especially in the popular 1- and 2-liter soft drink bottles. The tin content in these stabilizers has generally declined over the past 20 years. Earlier, it had been about 17% tin but, now ranges from 6 to 17% tin.

f) A spokesman for the Defense Logistics Agency (DLA) (Fort Belvoir, VA), which conducts Government stockpile sales: By 1954, the Government tin stockpile had reached its maximum level of about 300,000 tons, following 8 years of heavy purchasing. Since the tin selling program began in 1960, the Government stockpile has sold almost 200,000 tons. There is about 122,000 tons now in the stockpile, of which about 103,000 tons are Longhorn (Texas) brand. The largest amounts are stored in depots in Curtis Bay, MD; Hammond, IN; Stockton, CA; Anniston, AL; Point Pleasant, WV. In 1995, DLA sold 2,924 tons on the spot market and 9,090 tons via long term contract. DLA has decided it will maintain its combined spot and long-term contract disposal policy for fiscal year 1996. DLA intends to issue a solicitation for a long- term contract in June. Tentative plans for fiscal year 1997 call for making two long-term awards, in January for 5,000 tons and in July for 5,000 tons, and using spot sales for the remaining 2,000 tons.

In Pittsburgh, PA, the Steel Recycling Institute (SRI) announced that, in the United States, steel cans were recycled at a rate of 56% in 1995. This compares with a rate of 53% in 1994. The industry remelted more than 18 billion steel cans into new products. The increased recycling rate represented 566 cans being recycled every second, domestically. The SRI pointed out that with the recent addition of cities like New York, Chicago, and Los Angeles to its national aerosol recycling program, more than 95 million people can now recycle their empty aerosol cans. And more than 58 million can recycle empty paint cans. [*SRI's Facts About Steel*, April, 1996].

Update:

On July 19, 1996, the *Platt's Metals Week* composite price for tin was $4.15 per pound.

TABLE 1
SALIENT TIN STATISTICS 1/

(Metric tons, unless otherwise noted)

		1996		
	1995 p/	April	May	January-May
Production (scrap):				
As tin metal 2/	W	W	W	W
From brass and bronze e/ 3/	10,800	900	900	4,500
Consumption:				
Primary	34,400	3,000	3,020	15,100
Secondary	10,400	878	852	4,340
Imports for consumption, metal	33,200	2,810	NA	NA
Exports, metal	2,790	336	NA	NA
Stocks at end of period	4,580	4,880 r/	5,600	XX
Prices (average cents per pound): 4/				
Metals Week composite	415.61	429.61	426.88	XX
Metals Week New York dealer	294.54	304.11	299.94	XX
London, standard grade, cash	282.00	293.00	290.00	XX
Kuala Lumpur	277.59	289.28	288.33	XX

e/ Estimated. p/ Preliminary. r/ Revised. NA Not available. W Withheld to avoid disclosing company proprietary data. XX Not applicable.
1/ Data are rounded to three significant digits, except prices.
2/ Includes tin metal recovered at detinning and other plants.
3/ Includes tin recovered from copper-, lead-, and tin-base scrap.
4/ Source: Platt's Metals Week.

TABLE 2
METALS WEEK COMPOSITE PRICE

(Cents per pound)

Period	High	Low	Average
1995 (annual)	473.30	360.15	415.61
1995:			
May	404.4	388.01	398.77
June	448.99	408.22	436.07
July	453.8	421.42	438.73
August	473.3	431.07	458.66
September	434.5	414.2	424.8
October	427.1	410.54	417.19
November	427.16	419.31	425.35
December	427.1	416.42	419.75
1996:			
January	423.56	415.24	418.59
February	417.7	411.89	415.55
March	427.03	405.03	414.71
April	435.05	422.96	429.61
May	436.25	415.3	426.88

Source: Platt's Metals Week.

TABLE 3
TINPLATE PRODUCTION AND SHIPMENTS IN THE UNITED STATES 1/

(Metric tons, unless otherwise noted)

Period	Tinplate waste (waste, strips, cobbles, etc.) (gross weight)	Tinplate (all forms)			
		Gross weight	Tin content	Tin per metric ton of plate (kilograms)	Shipments 2/
1995: p/	205,000	1,660,000	9,600	5.8	2,400,000
1996:					
January	14,200	116,000	729	6.3	179,000
February	16,700	131,000	826	6.3	196,000
March	16,900	144,000	813	5.6	220,000
April	16,100 r/	124,000 r/	790 r/	6.3 r/	202,000
May	16,200	122,000	821	6.7	NA

p/ Preliminary. r/ Revised. NA Not available.
1/ Data are rounded to three significant digits.
2/ Shipments data from American Iron and Steel Institute monthly publication AIS10.

TABLE 4
U.S. TIN IMPORTS FOR CONSUMPTION AND EXPORTS 1/

(Metric tons)

Country or product	1995	1996		
		March	April	January-April
Imports:				
Metal (unwrought tin):				
Bolivia	6,630	460	747	2,300
Brazil	8,070	541	500	2,940
China	5,610	400	88	1,460
Indonesia	7,230	480	1,000	2,440
Malaysia	3,810	80	100	260
Russia	149	59	240	352
Other	1,660 r/	110 r/	135	405
Total	33,200	2,130	2,810	10,200
Other, (gross weight):				
Alloys	11,400	1,180	1,030	4,140
Bars and rods	484	62	65	259
Foil, tubes, and pipes	16	--	(2/)	(2/)
Plates, sheets, and strip	468	1	3	155
Powders and flakes	37	--	--	--
Waste and scrap	15,900	735	572	3,370
Miscellaneous	1,470	98	75	349
Total	29,800	2,080	1,750	8,280
Exports (metal)	2,790	467	336	1,720

r/ Revised.
1/ Data are rounded to three significant digits; may not add to totals shown.
2/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 5
CONSUMPTION OF TIN IN THE UNITED STATES, BY FINISHED PRODUCT 1/

(Metric tons of contained tin)

Product	1995 p/	1996						
		April			May			January-May
		Primary	Secondary	Total	Primary	Secondary	Total	total
Alloys (miscellaneous) 2/	W	W	W	W	W	W	W	W
Babbitt	254	9	--	9	12	W	12	95
Bar tin and anodes	77	9	--	9	9	--	9	35
Bronze and brass	1,940	62	105	167	85	96	181	792
Chemicals	W	W	--	W	W	--	W	W
Collapsible tubes and foil	W	W	W	W	W	W	W	W
Solder	9,470	466	255	721	429	239	668	3,650
Tinning	689	135	--	135	130	--	130	702
Tinplate 3/	9,610	790 r/	W	790 r/	821	W	821	3,980
Tin powder	159	50	--	50	48	--	48	195
White metal 4/	W	W	--	W	W	--	W	8
Other	6,680	574 r/	18	592 r/	584	19	603	3,020
Total reported	28,900	2,100 r/	378	2,470 r/	2,120	352	2,480	12,500
Estimated undistributed consumption 5/	15,900	900	500	1,400	900	500	1,400	7,000
Total	44,800	3,000 r/	878	3,870 r/	3,020	852	3,880	19,500

p/ Preliminary. r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Other."
1/ Data are rounded to three significant digits; may not add to totals shown.
2/ Includes terne metal.
3/ Includes secondary pig tin and tin acquired in chemicals.
4/ Includes pewter, britannia metal, and jewelers' metal.
5/ Estimated consumption of plants reporting on an annual basis.

TABLE 6
DEFENSE LOGISTICS AGENCY
TIN STOCKPILE DISPOSALS 1/

(Metric tons)

Period	Monthly disposals
1995:	
May	105
June	40
July	40
August	40
September	235
October	110
November	20
December	15
Year total	955
1996:	
January	90
February	450
March	534
April	5
May	10
Total	1,090

1/ Data are rounded to three significant digits; may not add to totals shown.

Source: Defense Logistics Agency.